# Ensinger TECASINT 1021 Polyimide, 15% Graphite Filled (PI)

**Category :** Polymer , Thermoplastic , Polyimide, Thermoplastic , Thermoplastic Polyimide, Graphite Filled

**Material Notes:**

TECASINT is a range of non-melting high temperature polyimides characterized by high strength over a wide range of temperatures, good long term thermal stability, minimal thermal expansion and excellent wear resistance among other things. The TECASINT 2000 series offers these enhanced thermal properties along with lower moisture absorption, a higher degree of toughness, and better machining properties. TECASINT 2011 is unfilled, while TECASINT 2021 contains 15% graphite which offer improved wear resistance and a lower coefficient of friction. TECASINT 2000 series with their superior physical properties, are ideal for application in the aerospace, nuclear, automotive, electrical/electronics, and chemical processing industries.Main FeaturesHigh thermal and mechanical capacityGood radiation-resistanceLow outgassingFlame retardant according to UL94 V-0Easily machinedVery creep resistantGood slid and wear propertiesBroad chemical compatibilityNot electrical insulatingSensitive to hydrolysis in higher thermal rangeApplicationsMechanical engineeringMaterials handling equipmentAircraft and aerospace industriesPrecision engineeringAutomotive industryHot glass technologyCryogenicsPreferred FieldsValve seating, skid rails, chain guides, piston rings, gripper for hot glass, bearings, washersInformation Provided by Ensinger, Inc.

Order this product through the following link:
http://www.lookpolymers.com/polymer_Ensinger-TECASINT-1021-Polyimide-15-Graphite-Filled-PI.php

| Physical Properties | Metric | English | Comments |
|---|---|---|---|
| Density | 1.42 g/cc<br>@Temperature 23.0 °C | 0.0513 lb/in³<br>@Temperature 73.4 °F | DIN 53 479 |
| Filler Content | 15 % | 15 % | Graphite |
| Water Absorption | 0.51 %<br>@Temperature 23.0 °C, Time 86400 sec | 0.51 %<br>@Temperature 73.4 °F, Time 24.0 hour | EN ISO 62 |
| | 1.57 %<br>@Temperature 80.0 °C, Time 86400 sec | 1.57 %<br>@Temperature 176 °F, Time 24.0 hour | EN ISO 62 |

| Mechanical Properties | Metric | English | Comments |
|---|---|---|---|
| Hardness, Shore D | 88<br>@Temperature 23.0 °C | 88<br>@Temperature 73.4 °F | DIN 53 505 |
| Tensile Strength, Yield | 97.0 MPa<br>@Temperature 23.0 °C | 14100 psi<br>@Temperature 73.4 °F | EN ISO 527 |
| Elongation at Break | 2.8 %<br>@Temperature 23.0 °C | 2.8 %<br>@Temperature 73.4 °F | EN ISO 527 |
| Elongation at Yield | 4.5 % | 4.5 % | Flexural; EN ISO 178 |

| Mechanical Properties | Metric | English | Comments |
|---|---|---|---|
| Tensile Modulus | 4.00 GPa<br>@Temperature 23.0 °C | 580 ksi<br>@Temperature 73.4 °F | EN ISO 527 |
| Flexural Strength | 150 MPa<br>@Temperature 23.0 °C | 21800 psi<br>@Temperature 73.4 °F | EN ISO 178 |
| Flexural Modulus | 4.00 GPa<br>@Temperature 23.0 °C | 580 ksi<br>@Temperature 73.4 °F | EN ISO 178 |
| Compressive Yield Strength | 175 MPa | 25400 psi | 10% Strain; EN ISO 604 |
| Compressive Strength | 210 MPa<br>@Temperature 23.0 °C | 30500 psi<br>@Temperature 73.4 °F | EN ISO 604 |
| Compressive Modulus | 1.88 GPa<br>@Temperature 23.0 °C | 273 ksi<br>@Temperature 73.4 °F | EN ISO 604 |
| Charpy Impact Unnotched | 3.51 J/cm² | 16.7 ft-lb/in² | EN ISO 179 |
| Charpy Impact, Notched | 0.480 J/cm²<br>@Temperature 23.0 °C | 2.28 ft-lb/in²<br>@Temperature 73.4 °F | EN ISO 179 |
| Compression Set | 20.1 % | 20.1 % | Compression at Break; EN ISO 604 |

| Thermal Properties | Metric | English | Comments |
|---|---|---|---|
| CTE, linear | 38.0 µm/m-°C<br>@Temperature 50.0 - 200 °C | 21.1 µin/in-°F<br>@Temperature 122 - 392 °F | DIN 53 752 |
| Specific Heat Capacity | 1.13 J/g-°C | 0.270 BTU/lb-°F | |
| Thermal Conductivity | 0.530 W/m-K<br>@Temperature 40.0 °C | 3.68 BTU-in/hr-ft²-°F<br>@Temperature 104 °F | ISO 8302 |
| Maximum Service Temperature, Air | 300 °C | 572 °F | |
| Deflection Temperature at 1.8 MPa (264 psi) | 300 °C | 572 °F | DIN 53 461 |
| Glass Transition Temp, Tg | 330 °C | 626 °F | DMTA |
| Flammability, UL94 | V-0 | V-0 | |

| Electrical Properties | Metric | English | Comments |
|---|---|---|---|
| Surface Resistance | <= 1.00e+7 ohm<br>@Temperature 23.0 °C | <= 1.00e+7 ohm<br>@Temperature 73.4 °F | IEC 60093 |

| Descriptive Properties | Value | Comments |
|---|---|---|
| Color | Black | |
| DIN-Abbreviation | PI CS 15 | |

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